

**I. Formal Matters:**

Rejections Under 35 U.S.C. §112, Second Paragraph

Claims 1-15, 19-23 and 31-32 were rejected under 35 U.S.C. §112, second paragraph as allegedly being indefinite.

In particular, the Examiner remarks that the claims are indefinite because they merely set forth physical characteristics desired in an article and do not define a structure.

The Examiner's attention is hereby directed to the following locations in the Specification. As set forth at page 4, lines 29-33 and page 6, lines 26-28, the superabsorbent material may be in a variety of different forms. As set forth at page 10, lines 5-18, the superabsorbent material may be contained in a containment means that may include many different types of fiber structures, including, but not limited to, an air-laid or wet-laid fibrous matrix, a meltblown web of fibers, air laid heat-fused webs of synthetic materials, open-celled foams and the like. Additionally, the containment means may comprise a pocket comprising two layers of material, which may be cloth-like wovens and nonwovens, closed or open-celled foams, perforated films, elastomeric materials, or fibrous webs; or may comprise a polymeric film to which the superabsorbent material is attached (page 10, lines 19-37). As set forth, these are known containment means and one of ordinary skill in the art would understand that the structure in which the superabsorbent materials of the present invention is not the novel aspect of this invention, but rather that the materials used are the novel and non-obvious aspects of the present invention. As Applicants' claims must be read in light of the Specification, and since the Specification clearly defines the possible structures, and Applicants' claims to the absorbent structure and the disposable garment are not limited (by use of "comprising"), it is respectfully submitted that Applicants' claims would be definite to one of ordinary skill in the art since they would be able to make and use Applicants' claimed invention using the description set forth.

In regards to the fibrous material, as shown at Page 12, lines 18-36, the superabsorbent material may be incorporated into a fibrous substrate, but the type of fibrous substrate that may be used can vary and is not critical. Alternatively, the superabsorbent material and fibrous material may be mixed, such as with a known air-mixing process, and may be distributed uniformly or non-uniformly (page 13, lines 1-16). Another structural possibility is the use of superabsorbent layer or layers, which is described at page 13, lines 17-28. Finally, as shown at page 2, lines 15-17, the fibers will generally separate particles of superabsorbent material to avoid gel-blocking.

Accordingly, Applicants respectfully submit that the novel and non-obvious aspects of the present invention are the superabsorbent materials, not the structure in which they

are used. As Applicants do not wish to be bound to any particular structure, no structure limitations have been included in the independent claims. However, contrary to the Examiner's contentions, the Specification clearly sets forth various possible structures and one of ordinary skill in the art would know how to incorporate the superabsorbent materials used in the present invention into an absorbent structure or disposable garment as claimed. And since Applicants' claims must be read in light of the teachings of the Specification, it is respectfully submitted that Claims 1-15, 19-23 and 31-32 are definite. Accordingly, Applicants respectfully request withdrawal of this rejection.

## **II. Prior Art Rejections:**

Claims 1-15, 19-23 and 31-32 stand rejected under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent Nos. 5,669,894 and 6,380,456 to Goldman et al. (hereafter "Goldman '894" and Goldman '456"), U.S. Patent No. 6,261,679 to Chen et al. (hereafter "Chen"), U.S. Patent No. 6,235,965 to Beihoffer et al. (hereafter "Beihoffer"), and U.S. Patent No. 5,676,660 to Mukaida et al. (hereafter "Mukaida"). This rejection is respectfully traversed. It is not clear whether the Examiner is rejecting these claims using a combination of these references (which is the way this rejection is written) or whether the Examiner is alleging that the claims are unpatentable under each reference individually. Applicants respectfully submit that as each of the references alone fails to teach or suggest Applicants' claimed invention for the reasons set forth below, a combination of these references would also fail to teach or suggest Applicants' claimed invention.

Claim 1 is directed to, *inter alia*, an absorbent structure comprising about 30 to about 90 weight percent, based on the total weight of the composite, superabsorbent material and from about 70 to about 10 weight percent fibers, wherein the superabsorbent material has a Gel Bed Permeability (GBP) value of greater than about  $70 \times 10^{-9} \text{ cm}^2$  and an Absorbency Under Load (AUL) value at 0.6 psi of less than about 25 g/g. Claim 32 is directed to, *inter alia*, a disposable garment comprising at least one absorbent structure, wherein the at least one absorbent structure comprises about 30 to about 90 weight percent, based on the total weight of the composite, superabsorbent material and from about 70 to about 10 weight percent fibers, and wherein the superabsorbent material has a Gel Bed Permeability (GBP) value of greater than about  $70 \times 10^{-9} \text{ cm}^2$  and an Absorbency Under Load (AUL) value at 0.6 psi of less than about 25 g/g.

Goldman '894 is directed to an absorbent material having an absorbent polymer in an amount of from about 60-100 % by weight and an amount of fiber. The materials have a

Performance under Pressure (PUP) capacity of at least 23 g/g at a pressure of 0.7 psi (col. 7, lines 1-3).

Goldman '456 is directed to an absorbent material having an absorbent polymer in an amount of from about 60-100 % by weight and an amount of fiber. The materials have a Performance under Pressure (PUP) capacity of at least 23 g/g at a pressure of 0.7 psi (col. 6, lines 48-52).

It is respectfully submitted that Goldman '894 and Goldman '456 each fail to teach or suggest Applicants' claimed invention. The absorbent composites of the present invention have unique and unexpected composite permeabilities, that may be seen from the results of testing, the data of which is provided in Table 8. As such, the present invention provides superabsorbent composites that are unconventional to prior art absorbent composites, such as the Goldman composites. The composites of the present invention have a much higher composite permeability than prior art composites, but have a lower capacity. This is contrary to the Goldman composites that desire a high capacity, but at the expense of low permeabilities. The present invention provides an improvement over these high capacity composites as the higher capacities are useless when the composite cannot continue to acquire liquid at the rate required during the life of the composite.

The Examiner alleges that since Goldman provides an absorbent structure having sodium polyacrylate and fibers, they would inherently include the properties claimed by Applicants. Applicants respectfully traverse this statement. Goldman discloses a PUP measurement that is analogous to Applicants' claimed AUL. Goldman desires a PUP of at least 23 g/g at a pressure of 0.7 psi. Applicants' claimed invention has an AUL of less than about 25 g/g at a pressure of 0.6 psi. While there might appear to be an overlap in these ranges, this is incorrect due to the fact that the measurements are at different pressures and since it is well known in the art that as pressure increases, capacity decreases. As such, if the pressure of the PUP measurements in Goldman were decreased to 0.6 psi, the resulting capacity would be greater than 25 g/g. Conversely, if the AUL measurement of Applicants' claimed invention were increased, the capacity would be less than 23 g/g. As support for the premise that it is well known in the art that an increase in pressure results in a decrease in capacity, Applicants are providing herewith a copy of U.S. Patent No. 5,601,542 (Exhibit A) and direct the Examiner's attention specifically to the data set forth in Tables 2 and 5. This data clearly shows that as pressure increases, capacity of absorbent materials decreases. As support for the statement that Goldman fails to teach Applicants' claimed AUL due to the difference in pressure for the PUP vs. the AUL tests, Applicants respectfully submit that an analysis of the 32 total samples in

Tables 2 and 5 shows an average drop of about 2.5 g/g in capacity over the range of 0.6 psi to 0.7 psi. As such, Goldman's materials would have a resulting PUP of greater than 25.5 g/g at 0.6 psi. And since Goldman desires higher capacities, and contrary to the Examiner's comments, it would not have been obvious to have a capacity of less than 25 g/g (and therefore increase permeability of the material) since this would teach away from the intended purpose of Goldman. Accordingly, it is respectfully submitted that Goldman fails to teach or suggest Applicants' claimed invention.

Chen is commonly owned by the Assignee of the present application, Kimberly Clark Worldwide, Inc. Chen is directed to particular open-celled absorbent structures using hydrophilic fibers to create a low density absorbent structure. Chen discusses the AUL values of its materials as ranging from about 9 to about 40 g/g at 0.3 psi.

It is respectfully submitted that Chen fails to teach or suggest Applicants' claimed invention. While Chen does teach AUL values falling within Applicants' claimed ranges, Chen fails to discuss or even suggest superabsorbent materials having a GBP of greater than about  $70 \times 10^{-9} \text{ cm}^2$ . Chen is concerned with a novel absorbent structure. This structure, while novel and non-obvious, comprises an open-celled foam that utilizes hydrophilic fibers. As such, these hydrophilic fibers will interfere with the composite permeability of the absorbent structure. Since Applicants' absorbent structures utilize only superabsorbent materials and fibers that provide a high composite permeability with a lower capacity, and since Chen fails to recognize the desire for high composite permeabilities, Chen cannot be said to teach or suggest Applicants' claimed invention. Additionally, as Chen is directed to a particular structure, it would not have been obvious how to accomplish this within the teachings of making a particular absorbent structure. Accordingly, it is respectfully submitted that Chen fails to teach or suggest Applicants' claimed invention.

Beihoffer is directed to new multi-component superabsorbent materials. These materials are not disclosed as being used with fibers, but are designed to be used alone, though they may be in the shape of fibers. The materials are designed to have a higher capacity to counteract a salt poisoning effect problem.

It is respectfully submitted that Beihoffer fails to teach or suggest Applicants' claimed invention. As shown in the examples, the present invention comprises multi-component SAPs. The absorbency under load for these materials drastically increases versus standard SAP materials. Again, as higher capacity is desired, this would be expected that those materials falling within the scope of that invention would have higher AUL values, in excess of 25 g/g at 0.7 psi. However, as shown in Table 10, when AUL of the materials drops, so does the Saline

Flow Conductivity (SFC). As SFC measures the ability of the SAP to transport fluids, this is analogous to GBP. As such, the materials in Beihoffer teach known SAP problems, namely that increased fluid transports results in increased AULs. This is contrary to Applicants' claimed invention wherein higher fluid transports can be achieved with lower AULs, which is advantageous for the reasons mentioned above. Accordingly, it is respectfully submitted that Beihoffer fails to teach or suggest Applicants' claimed invention.

Mukaida is directed to absorbent structures using SAPs. These structures are desired to have higher capacities. There is no discussion of permeabilities.

It is respectfully submitted that Mukaida fails to teach or suggest Applicants' claimed invention. Mukaida teaches common SAP materials and desires higher capacities. The examples all provide materials having an AUL of 28 g/g or higher. As previously discussed, prior art superabsorbent materials desire higher capacities without regard for how this fluid will be absorbed by the structure. As such, these materials result in leakage. The present invention provides an improvement over these high capacity composites as the higher capacities are useless when the composite cannot continue to acquire liquid at the rate required during the life of the composite. As Mukaida fails to teach or suggest these materials, it is respectfully submitted that Mukaida fails to teach or suggest Applicants' claimed invention.

For at least the reasons given above, Applicant respectfully submits that Claims 1 and 32 are allowable over the art of record. Furthermore, since Claims 2-23 and 31 recite additional claim features and depend from Claim 1, these claims are also allowable over the art of record. Accordingly, Applicants respectfully request withdrawal of this rejection.

### **III. Conclusion:**

For at least the reasons given above, Applicants respectfully submit that Claims 1-23 and 31-32 define patentable subject matter. Accordingly, Applicants respectfully request allowance of these claims.

The foregoing is submitted as a full and complete Response to the Office Action of May 22, 2002, and early and favorable consideration of the claims is requested.

Should the Examiner believe that anything further is necessary in order to place the application in better condition for allowance, the Examiner is respectfully requested to contact Applicants' representative at the telephone number listed below.

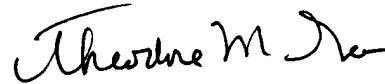
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No additional fees are believed due; however, the Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, to Deposit Account No. 11-0855.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Theodore M. Green".

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